

# Factors Influencing Adoption and Diffusion of Mobile Payment Systems – A Holistic Framework

A thesis submitted by **Agnieszka Zmijewska**

in fulfilment of the requirements for the award of the degree

DOCTOR OF PHILOSOPHY

in Computer Sciences

February 2007

Faculty of Information Technology

University of Technology, Sydney

### Certificate of Authorship/Originality

*I certify that the work in this thesis has not previously been submitted for a degree nor has it been submitted as part of requirements for a degree.*

*I also certify that the thesis has been written by me. Any help that I have received in my research work and the preparation of the thesis itself has been acknowledged. In addition, I certify that all information sources and literature used are indicated in the thesis.*



Agnieszka Zmijewska

## Acknowledgements

Thanks for all the great help received from my supervisor, Associate Professor Elaine Lawrence, who has been extremely supportive at every stage of this research. Elaine has constantly provided me with guidance, advice, motivation and support, and has always given her feedback in a record time. Thanks also to Professor J. Felix Hampe, my co-supervisor, for reading my chapters. The thesis examiners have provided very valuable feedback as well.

Special thanks, of course, to Gerhard for his love and support, giving me so much happiness, always being there for me, making me hundreds of coffees to keep me going during writing, and, last but not least, for making this thesis look as pretty as it does. Also thanks for the support of my family, Mum, Dad, Kasia and Pawel, who have had to listen to me talking about the same topic for the past three years. The same goes to my friends who have been there for me since I started, and understood when I needed 'time off social life' – Dorota, Karolina, Monika, Ola, Romek, Sylwia, and Terka (alphabetically!).



*"Being a PhD student is like becoming all of the Seven Dwarfs at once. In the beginning you're Dopey and Bashful. In the middle, you are usually Sneezy, Sleepy, and Grumpy. But at the end, they call you Doc, and then you're Happy!" (Found online at <http://www.cs.unc.edu/~azuma/hitch4.html>)*

## Publications supporting this research

The following publications published in peer-reviewed journals and conferences are directly related to this research. The relevance of these papers, as well as of other publications by the author of this thesis, is described in Appendix B.

- Dahlberg, T., Mallat, N., Ondrus, J. & Zmijewska, A. (2007) 'Mobile Payments: A Review of Past, Present, and Future Research', to appear in the *ECRA (Electronic Commerce Research and Applications) Journal's Special Issue on Mobile Payments*
- Dahlberg, T., Mallat, N., Ondrus, J. & Zmijewska, A. (2006) 'Mobile Payment Services Market Research – Past, Present and Future', in *Proceedings of the Mobility Roundtable*, Helsinki, Finland, June 2006
- Zmijewska, A. & Lawrence, E. (2006) 'Implementation Models in Mobile Payments', in *Proceedings of the IASTED International Conference on Advances in Computer Science and Technology (ACST)*, Puerto Vallarta, Mexico, Jan 2006
- Zmijewska, A. & Lawrence, E. (2005) 'Reshaping the Framework for Analysing Success of Mobile Payment Solutions', in *Proceedings of the IADIS International Conference on E-Commerce*, Porto, Portugal, Dec 2005
- Zmijewska, A. (2005) 'Evaluating Wireless Technologies in Mobile Payments – A Customer-Centric Approach', in *Proceedings the 4th International Conference on Mobile Business (ICMB)*, Sydney, Australia, July 2005
- Pradhan, S., Lawrence, E. & Zmijewska, A. (2005) 'Bluetooth as an Enabling Technology in Mobile Transactions', in *Proceedings of the International Conference on Information Technology (ICIT)*, Las Vegas, NV, Nov 2005

- Lawrence, E., **Zmijewska, A.** & Pradhan, S. (2005) 'Mobile Payments: Partner or Perish?', in *Proceedings of The Asian Applied Computing Conference (AACC)*, Kathmandu, Nepal, Dec 2005
- Zmijewska, A.**, Lawrence, E. & Steele, R. (2004) 'Towards a Successful Global Payment System in Mobile Commerce', in *Proceedings of the IADIS International Conference on E-Commerce*, Lisbon, Portugal, Dec 2004
- Zmijewska, A.**, Lawrence, E. & Steele, R. (2004) 'Towards Understanding of Factors Influencing User Acceptance of Mobile Payment Systems', in *Proceedings of the IADIS International Conference on WWW/Internet*, Madrid, Spain, October 2004
- Zmijewska, A.**, Lawrence, E. & Steele, R. (2004) 'Classifying M-payments – a User-Centric Model', in *Proceedings of the 3rd International Conference on Mobile Business (ICMB)*, New York, NY, July 2004

# Abstract

Mobile devices have a potential to become ideal payment devices because they are small, light, personal, convenient, and many people carry them anytime, anywhere. Mobile devices have a number of connectivity options, and their own display and input capabilities. They are already widely used around the world.

Mobile payments, despite their potential, have not reached the expected adoption levels. While there may be many reasons for this, previous research focused on few topics only, mainly technology and consumers. The main aim of this study was to find out what is necessary to improve adoption and diffusion of mobile payments. Specific objectives that were proposed to help achieve this aim included: a) identifying all the factors that may influence adoption and diffusion of mobile payments, b) integrating such factors and relations between them in a holistic framework, and c) providing specific recommendations and guidelines in all the various perspectives.

Grounded theory was the methodology employed to fulfil these objectives. Qualitative approach was found to be most suitable to this study, and open-ended Web surveys, as well as various kinds of interviews, including email, face-

to-face, phone, and focus groups managed to obtain detailed, in-depth information from industry and user participants.

The main contribution of this study is the holistic theoretical framework that explains the specific factors that influence adoption and diffusion of mobile payments, provides interesting findings on each of the identified factors, and at the same time integrates such investigations together as one coherent whole that forms a roadmap of success factors for mobile payments.

Some of the discovered factors have not been proposed before at all. Some others have been proposed in fragmented explanations that focused on several influences only. Other factors have been proposed before but this study offered more accurate or understandable interpretations or names for them. In addition, this project integrated all the factors together in a holistic framework, pointing out all the important contexts and conditions that providers need to understand and fulfil. Another contribution is a multitude of specific guidelines and recommendations that have been discovered in the participants' data. This study, unlike some other mobile payment projects, additionally devoted much attention to studying mobile payments in relation to other payment methods. The proposed theory with its well explained success factors can be used by providers to improve their current systems or better design new mobile payment initiatives.

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